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SCIENTIFIC JOURNALS AND ARTICLES.

THE *American Journal of Science* for July contains the following articles:

D. A. KREIDER: 'Iodine Titration Voltameter.'

F. A. GOOCH: 'Handling of Precipitates for Solution and Reprecipitation.'

R. H. ASHLEY: 'Estimation of Sulphites by Iodine.'

M. TALBOT: 'Revision of the New York Helderbergian Crinoids.'

L. V. PIRSSON: 'Petrographic Province of Central Montana.'

T. HOLM: 'Croomia pauciflora.'

E. RUTHERFORD and B. B. BOLTWOOD: 'Relative Proportion of Radium and Uranium in Radioactive Minerals.'

J. TROWBRIDGE: 'Side Discharge of Electricity.'

H. L. BRONSON: 'Effect of High Temperatures on the Rate of Decay of the Active Deposit from Radium.'

THE contents of the June issue, *Terrestrial Magnetism and Atmospheric Electricity*, are as follows:

Frontispiece: Portrait of Karl Selim Lemström.

H. GERDIEN: 'Die Absolute Messung der spezifischen Leitfähigkeit und der Dichte des verticalen Leitungsstromes in der Atmosphäre.'

J. DE MOIDREY, S.J.: 'Mesures magnétiques en Chine.'

H. F. REID: 'Records of Seismographs in North America and the Hawaiian Islands.'

H. TALLQUIST: 'Karl Selim Lemström, His Life and Work.'

E. BIESE: 'Verzeichniss der Publicationen des verstorbenen Professors Selim Lemström.'

Letters to Editor—L. A. BAUER: 'Work of the Department of Terrestrial Magnetism of the Carnegie Institution for 1905.' W. F. WALLIS: 'Principal Magnetic Disturbances Recorded at Cheltenham Magnetic Observatory, March 1 to May 31, 1905.'

Notes—'Additional Eclipse (August 30, 1905) Stations.' 'Miscellaneous.'

SOCIETIES AND ACADEMIES.

THE MISSOURI SOCIETY OF TEACHERS OF MATHEMATICS.

THE past few years has been a very widespread movement among teachers of mathematics towards the organization of local, state and sectional associations of teachers of mathematics. This movement is both a re-

sult and a cause of a very general dissatisfaction with methods of teaching mathematics in the recent past, and of various kinds of attempts to improve them. Among the many ideas that are prominently discussed are those suggested by the terms correlation, laboratory methods, individual instruction, self-activity, graphical methods, etc. The facts of modern life are furnishing material which is replacing obsolete problems. An effort is being made to bring mathematics into vital relations with the whole of life. Even the long undisturbed supremacy of the methods of Euclid in secondary education is being questioned. What will it lead to? Even the elementary teacher can not fail to see what the investigator has never lost sight of, that he is dealing not with a completed, a dead, a petrified subject, but with one of the most vigorous, living, growing subjects taught in our schools. Perhaps one of the strongest evidences that this is the case is seen in the large number of state and sectional organizations of teachers of mathematics throughout the country.

The first annual meeting of the Missouri Society of Teachers of Mathematics met at Columbia, Missouri, May 6, 1905. A preliminary meeting had been held at St. Louis in connection with the National Educational Association. The temporary organization of the society was effected at the meeting of the State Teachers' Association at Columbia, December 28, 1904. At a meeting of the mathematics section of that body a committee of organization was appointed, consisting of E. R. Hedrick, University of Missouri, Columbia; H. C. Harvey, State Normal School, Kirksville, and B. T. Chace, Manual Training High School, Kansas City.

The permanent organization was completed at the meeting on May 6. The constitution provides that there shall be at least two meetings each year, one in connection with the annual meeting of the State Teachers' Association, the next meeting of which will be held at Jefferson City, December 1905, and one during the month of April or May, which shall be the annual meeting for the election of officers and the transaction of general busi-

ness. The general management of the society is in the hands of an executive council of six members. Steps have already been taken towards the establishment of several divisions.

The total membership of the society is two hundred and thirty-six.

L. D. Ames, of Columbia, presided at the meeting. The following officers were elected:

President—H. C. Harvey, Kirksville.

Vice-President—L. M. Defoe, Columbia.

Secretary—L. D. Ames, Columbia.

Executive Council—E. R. Hedrick, Columbia (chairman); B. T. Chace, Kansas City; B. F. Finkel, Springfield; B. F. Johnston, Cape Girardeau; Wm. Schuyler, St. Louis; Miss E. J. Webster, Kansas City.

The monthly journal, *School Science and Mathematics*, was made the official organ of the society, and will be sent free to all members. The annual dues are one dollar and fifty cents.

Arrangements were made to send delegates to a conference to be held in connection with the National Educational Association, which met at Asbury Park, N. J., on July 7-11, 1905, looking towards the organization of a national society.

The following papers were read:

E. Y. BURTON, St. Charles Military Academy: 'Correlation of Arithmetic, Algebra, Geometry and Trigonometry.'

WM. SCHUYLER, McKinley High School, St. Louis: 'An Experiment in Individual Instruction.'

GEO. R. DEAN, School of Mines, Rolla: 'A Method of Teaching Elementary Geometry.'

J. W. WITHERS, Yeatman High School, St. Louis: 'The Teaching of Mathematics in the High School.'

F. C. TOUTON, Central High School, Kansas City: 'Some Developments in Elementary Algebra.'

WM. A. LUBY, Central High School, Kansas City: 'The Teaching of Zero and Infinity in the High School.'

Abstracts of these papers will be published in *School Science and Mathematics*.

L. D. AMES.

THE TORREY BOTANICAL CLUB.

THE meeting of May 9 was held at the New York Botanical Garden, with President Rusby in the chair and 42 members and visitors present.

The meeting was devoted to the exhibition

and discussion of the various forms of American violets. The discussion was opened by Dr. N. L. Britton, who spoke of the recent specific differentiations of various authors. He was of the opinion that many of these were doubtful and that while we had, perhaps, twice as many good species as were known in Gray's time, we only have about half as many good species as have been described. The speaker then gave a general sketch of the group, noting that while they are preeminently a north temperate cosmopolitan group they extended into the southern hemisphere along the highlands in both the orient and the occident. There is only a single endemic and one introduced species known from the West Indies. Mexico furnishes, perhaps, half a dozen species, and there are numerous species in the highlands of South America. Our violets fall naturally into two habit groups, the acaulescent and the stemmed. A rather common character is the occurrence of cleistogamic flowers, which are borne on horizontal or erect scapes according to the species. The speaker passed the various species in review, paying particular attention to those of eastern North America.

Stewardson Brown, of the Philadelphia Botanical Club, was called upon to review Dr. Britton's remarks. He said that in the main he agreed with Dr. Britton's views of specific validity. He called attention to a form from the vicinity of Philadelphia which Stone recently identified as *Viola septemloba* of LeConte of the *palmata* group, and which the speaker believed to be something different. Attention was also called to *Viola obliqua*, one of the earliest and most abundant violets in the Philadelphia region. The speaker described the *sagittata-fimbriatula* group as one of the most integrated and little understood of any of the groups of acaulescent blue violets.

Continuing the discussion, W. W. Eggleston mentioned the occurrence of what he believed to be a hybrid form. He also called attention to President Brainerd's methods of studying violets under cultivation and observing their fruit characters.

L. H. Lighthipe called attention to *Viola*

Angelli, holding it to be distinct from *Viola palmata*, the differences showing in the character of the flowers and of the summer leaves. Miss Angell, who was present, told of her studies of this species and called attention to the extraordinary size of the summer leaves. Dr. Rusby in the course of his remarks mentioned a very early form which is apparently the variety *cordata* of *Viola cucullata* of Gray. This form has been studied extensively by Miss Sanial, one of the club members.

Dr. Rydberg spoke of the violets of the Rocky Mountain region, passing in review the various species from that section and calling attention to the occurrence of the common European *Viola biflora* which reappears in Colorado.

Dr. Shull spoke of the difficulty he had experienced in germinating violet seeds, and in the discussion it was brought out that violet seeds are apt to lose their vitality upon drying.

Dr. MacDougal spoke of the difficulties attendant upon mutation experiments with the violets, and advocated experiments to test any possible theories as to hybrids.

After some further discussion by Dr. Britton and others this most interesting meeting was brought to a close.

EDWARD W. BERRY,
Secretary.

THE UNIVERSITY OF COLORADO SCIENTIFIC SOCIETY.

DURING the academic year 1904-5 the society met every Monday evening from October to May, holding in all thirty meetings. In nearly all cases a single topic was discussed at each session, but a few times there were two papers given. The speakers avoided technicalities as far as possible and presented their topics in such form as to be interesting to men of science generally. Papers were given, for the most part, by members of the faculty representing the various departments of pure and applied science. At the last meeting of the year, held on May 15, the following officers were elected:

President—Henry B. Dates.
Vice-President—Ira M. DeLong.

Secretary—Francis Ramaley.

Treasurer—Martin E. Miles.

FRANCIS RAMALEY,
Secretary.

BOULDER, COLO.,

June 7, 1905.

SPECIAL ARTICLES.

NEW WORK UPON WHEAT RUST.

FOR a number of years it has been the belief of the writer that the efficiency of the uredospores (summer spores) of wheat rust to perpetuate the disease is possibly much greater than thought to be. It has been assumed by most botanists that these spores are quick to germinate and short of life. As there are formed definite resting spores, and also the cluster cup stage on the barberry bush, it has been apparently taken for granted that the summer spores have no other effect than to rapidly spread the disease from plant to plant during the summer season.

It will be interesting news to mycologists to know that we have at last definitely established the fact of the wintering of the red spores (uredospores) of a number of the important rusts in viable form, including the important species *Puccinia graminis*.

During the winter of 1888 and 1889 the writer, while working at the Indiana Station, first demonstrated the fact that the mycelium of the uredo stage (red spore stage) of the species known as *Puccinia rubigo-vera* could pass the winter in the tissues of the wheat plant uninjured (see *Agricultural Science*, Vol. 3, page 105). During the summer of 1890 (see *Agricultural Science*, Vol. 5, Nos. 11 and 12) it was further proved that the red spores of this last-named species could survive exposure to the drying air and sunshine of July and August for over a month. This indicated that it was possible for such spores to be borne many miles by the wind, and aided to an understanding of the rapidity with which general rust infection may take place over large areas of country.

Aided by the persistent and painstaking efforts of assistant plant pathologist Mr. F. J. Pritchard, I have at last been able to make numerous trial studies upon methods of stor-